

Adoption of Climate-Smart Agriculture Practices Among Farmers and Its Effect on Crop Revenue in Ethiopia

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Abstract : Food security, adaptation, and climate change mitigation are all problems that can be resolved simultaneously with Climate-Smart Agriculture (CSA). This study examines determinants of climate-smart agriculture (CSA) practices among smallholder farmers, aiming to understand the factors guiding adoption decisions and evaluate the impact of CSA on smallholder farmer income in the study areas. For this study, three-stage sampling techniques were applied to select 230 smallholders randomly. Mann-Kendal test and multinomial endogenous switching regression model were used to analyze trends of decrease or increase within long-term temporal data and the impact of CSA on the smallholder farmer income, respectively. Findings revealed education level, household size, land ownership, off-farm income, climate information, and contact with extension agents found to be highly adopted CSA practices. On the contrary, erosion exerted a detrimental impact on all the agricultural practices examined within the study region. Various factors such as farming methods, the size of farms, proximity to irrigated farmlands, availability of extension services, distance to market hubs, and access to weather forecasts were recognized as key determinants influencing the adoption of CSA practices. The multinomial endogenous switching regression model (MESR) revealed that joint adoption of crop rotation and soil and water conservation practices significantly increased farm income by 1,107,245 ETB. The study recommends that counties and governments should prioritize addressing climate change in their development agendas to increase the adoption of climate-smart farming techniques.

Keywords : climate-smart practices, food security, Income, MERM, Ethiopia

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